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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/037,427	01/02/2002	Guenther Heinz	B01-085A	7207
26683	7590	10/05/2006	EXAMINER	
THE GATES CORPORATION IP LAW DEPT. 10-A3 1551 WEWATTA STREET DENVER, CO 80202			KRUER, STEFAN	
			ART UNIT	PAPER NUMBER
			3654	

DATE MAILED: 10/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/037,427		HEINZ ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Stefan Kruer		3654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 August 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 - 31 and 33 - 38 is/are pending in the application.
- 4a) Of the above claim(s) 27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 - 31 and 33 - 38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 5 March 2002 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1, 2 and 4 – 7, 13 – 14, 16, 17, 28 and 31** are rejected under 35 U.S.C. 103(a) as being unpatentable over Adifon et al (WO 99/43598) in view of Chen et al (US 5,837,085).

**Re: Claims 1, 13, 28, and 31**, Adifon et al disclose an elastomeric body (Fig. 7) having a width  $w$  and a thickness  $t$  and having a pulley-engaging surface, the elastomeric body having an aspect ratio greater than one and a tensile cord (726) contained within the elastomeric body and extending longitudinally. However, Adifon et al disclose their pulley-engaging surface and corresponding pulley as having flat profiles.

Chen et al teach that an elastomeric body (10, Fig. 5) having a ribbed profile of approximately  $90^\circ$  as the pulley-engaging surface, in accompaniment with a pulley having a ribbed profile, to provide the advantages of precise power transmission without slippage, reductions in space and initial tension, and low noise (Col. 1, Line 15).

It would have been obvious to one of ordinary skill in the art to modify the invention of Adifon et al with the teaching of Chen et al to provide a ribbed pulley-engaging surface, with a rib of approximately  $90^\circ$ , to gain the benefits as noted above for rider comfort and operational efficiencies.

**Re: Claims 2, 14 and 29**, Adifon et al disclose a tensile cord (726) comprising a conductive material having a resistance, as inherent to fibers of "...high-carbon steel..." (Pg 7, Line 15).

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**Re: Claims 4 and 16**, Chen et al teach a plurality of ribs (13).

**Re: Claims 5 and 17**, Adifon et al disclose a belt (16, Fig. 1) having an end.

**Re: Claim 6**, Adifon et al disclose a plurality of tensile cords (726).

**Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over Adifon et al and Chen et al, as applied to Claim 3 and 15, respectively, and in further view of White, Jr. et al (US 4,981,462).

Adifon et al and Chen et al are silent regarding a jacket on a surface opposite the pulley-engaging surface.

Attention is directed to White, Jr. et al who teach their jacket (30) on a surface opposite their pulley-engaging surface as known to the art (Col. 4, Line 20)

It would have been obvious to one of ordinary skill in the art to modify the reference of Adifon et al and Chen et al with the teaching of White, Jr. et al to provide a jacket on a surface opposite the pulley-engaging surface as known to the art.

**Claims 3, 15, 18, 21 – 22, 26 and 30** are rejected under 35 U.S.C. 103(a) as being unpatentable over Adifon et al in view of Chen et al, as applied to Claims 2 and 14 and 28, and in further view of Suhling (DE 3,934,654) and Siefert (US 3,662,596).

**Re: Claims 3, 15 and 30**, though Adifon et al disclose a tensile cord comprising a conductive material having a resistance, and the resistance of the cord inherently varies through changes in loading, their tensile cord as such is not configured for indicating change in resistance. Furthermore, Chen et al does not teach tension cords of conductive material.

Attention is directed to Suhling who teaches the incorporation of conductive tensile cords (12a – 12h, Fig. 2) in conventional flat- and toothed suspension belts (11) for the detection of breakage, whereby the integrity of the suspension belt is monitored for replacement; however, Suhling does not indicate a lifting load.

Further consideration is directed towards Siefert who teaches his apparatus for the measurement of "...tension or compression stresses in a metal tire cord embedded in rubberized material of a tire..." as a means to determine the tensile/compressive

strains of "...reinforcing metal cords... under different inflation, loading and operating conditions. (Col. 1, line 13).

It would have been obvious to one of ordinary skill in the art to modify the reference Adifon et al and Chen et al with the teachings of Suhling and Siefert to provide a means to determine the lifting load of suspension belts by monitoring the tension cords for elongation in advance of failure, for purposes of maintenance, safety and optimization.

**Re: Claim 18**, Adifon et al disclose a plurality of tensile cords (726).

**Re: Claims 21 and 22**, Adifon et al disclose their cords (726) "...formed from ... a metallic material, such as thin, high-carbon steel..." (Pg 7, Line 15).

**Re: Claim 26**, Adifon et al disclose an elastomeric body having a width  $w$  and a thickness  $t$  and having a pulley-engaging surface, the elastomeric body having an aspect ratio greater than one and a tensile cord (726) contained within the elastomeric body and extending longitudinally. However, Adifon et al disclose their pulley-engaging surface and corresponding pulley as having flat profiles.

Chen et al teach their belt having ribbed profile of approximately  $90^\circ$  to engage a pulley having a ribbed profile to enhance power transmission, however Chen et al are silent regarding the detection of a tensile cord load.

Attention is directed to Suhling who teaches an electric circuit for detecting a tensile cord failure and an interface to provide an alarm signal (audible or visual) and/or to automatically shutdown a hoist motor (Col. 4, line 38). Siefert teaches further his apparatus for measuring of the stress of reinforcing cords and his electrical circuit for indicating the stress under various operating conditions.

It would have been obvious to one of ordinary skill in the art to modify the invention Adifon et al and Chen et al with the teachings of Suhling and Siefert to reduce drive capacity and noise, as well as to promote safety through operating oversight.

**Claim 19** is rejected under 35 U.S.C. 103(a) as being unpatentable over Adifon et al over Chen et al, Suhling and Siefert, as applied to Claim 15, and in further view of and White, Jr. et al.

Neither Adifon et al, Chen et al, Suhling nor Siefert disclose a jacket on a surface opposite the pulley-engaging surface.

Attention is directed to White, Jr. et al who teach their jacket (30) on a surface opposite their pulley-engaging surface as known to the art (Col. 4, Line 20).

It would have been obvious to one of ordinary skill in the art to modify the reference of Adifon et al, Chen et al, Suhling and Seifert with the teaching of White, Jr. et al to provide a jacket on a surface opposite the pulley-engaging surface as known to the art.

**Claim 20** is rejected under 35 U.S.C. 103(a) as being unpatentable over Adifon et al over Chen et al, Suhling, Siefert, and White, Jr. et al as applied to Claim 19, and in further view of Stork (US 3,948,113).

Adifon et al, Chen et al, Suhling and Siefert are silent regarding a jacket and though White et al discloses his jacket as well known in the art, he is silent with regard to its material of construction.

Attention is directed to Stork who teaches his jacket (17,18, Fig. 2 and Col. 3, line 57) comprising "...rubberized woven fabric material such as ... nylon..."

In that nylon is known to the art as an abrasion resistant material, it would have been obvious to one of ordinary skill in the art at the time of the invention to form the jacket of nylon for resistance to wear.

**Claims 8 – 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Adifon et al over Chen et al and White et al, as applied to Claims 7 and 33, and in further view of Stork.

**Re: Claim 8**, Adifon et al, Chen et al, Suhling and Siefert are silent regarding a jacket and though White et al discloses his jacket as well known in the art, he is silent with regard to its material of construction.

Stork, however, teaches his jacket (17,18, Fig. 2 and Col. 3, line 57) comprising "...rubberized woven fabric material such as ... nylon..."

In that nylon is known to the art as an abrasion resistant material, it would have been obvious to one of ordinary skill in the art at the time of the invention to form the jacket of nylon for resistance to wear.

**Re: Claims 9 and 10**, Adifon et al disclose their cords (726) "...formed from ... a metallic material, such as thin, high-carbon steel..." (Pg 7, Line 15).

**Claims 11 and 23** are rejected under 35 U.S.C. 103(a) as being unpatentable over Adifon et al in view of Chen et al, as applied to Claim 1, and in further view of Siefert.

Adifon et al and Chen et al do not address the measurement of tensile cord loading. Siefert, however, teaches an electrical circuit (21, 22, 25, Fig. 1) connected to the tensile cord for measuring the stress-strain of metal cords, for various loading conditions. Conversely, based on the measured strains, the tensile loads can be calculated.

It would have been obvious to one of ordinary skill in the art to modify the reference of Adifon et al and Chen et al with the teachings of Siefert to provide a means to determine the tensile cord load of suspension belts by measuring the stresses of said cords through electrical transducers (P/I), to provide instantaneous feedback for operational oversight and historical data.

**Claims 12 and 24** are rejected under 35 U.S.C. 103(a) as being unpatentable over Adifon et al in view of Chen et al, as applied to Claims 1 and 13, respectively, and in further view of Suhling.

Adifon et al and Chen et al do not address the measurement of tensile cord failure. Suhling, however, teaches his tensile cords for the detection of breakage, including his electrical circuit (Fig. 1) for detection of such failure.

It would have been obvious to one of ordinary skill in the art to modify the reference of Adifon et al and Chen et al, with the teaching of Suhling, to provide a means to monitor the failure of tension members for safety and maintenance.

**Claims 25, 33 – 34 and 36 – 37** are rejected under 35 U.S.C. 103(a) as being unpatentable over Adifon et al in view of Chen et al, as applied to Claims 1 and 13, and in further view of Stork.

**Re: Claims 25 and 33 – 34**, Adifon et al and Chen et al are silent regarding a fiber loading of their elastomeric bodies.

Attention is directed to Stork who teaches fiber loading in his elastomeric body to resist the formation of cracks (Col. 4, Line 8).

It would have been obvious to one of ordinary skill in the art to modify the reference of Adifon et al and Chen et al with the teaching of Stork to extend fibers from the pulley-engaging surface to improve resistance to wear and failure.

**Re: Claims 36 – 37**, Stork teaches, "...rubberized woven fabric material such as cotton, polyester or nylon or combinations thereof..." (Col. 3, Line 58) that forms his "partial tension section" as a "flexible resilient material".

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a matrix of fibers for the enhancement of tensile and torsional strength properties.

**Claims 35 and 38** are rejected under 35 U.S.C. 103(a) as being unpatentable over Adifon et al in view of Chen et al, Suhling and Siefert, as applied to Claim 26, and in further view of Stork.

**Re: Claim 35**, Adifon et al, Chen et al, Suhling and Siefert are silent regarding a fiber loading in their elastomeric bodies.

Attention is directed to Stork who teaches such to resist the formation of cracks.

It would have been obvious to one of ordinary skill in the art to modify the reference of Adifon et al, Chen et al, Suhling and Siefert with the teaching of Stork to inhibit the formation/propagation of cracks.



**Re: Claim 38**, Stork teaches, "...rubberized woven fabric material such as cotton, polyester or nylon or combinations thereof..." (Col. 3, Line 58) that forms his "partial tension section" as a "flexible resilient material".

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a matrix of fibers for the enhancement of tensile and torsional strength properties.

**Claims 1 – 2, 4 – 5, 13 – 14, 16, 17, 28 - 29 and 31** are rejected under 35 U.S.C. 103(a) as being unpatentable over Adifon et al (WO 99/43598) in view of Habegger (US 3,558,390).

**Re: Claims 1, 13, 28 and 31**, Adifon et al disclose an elastomeric body (Fig. 7) having a width  $w$  and a thickness  $t$  and having a pulley-engaging surface, the elastomeric body having an aspect ratio greater than one and a tensile cord (726) contained within the elastomeric body and extending longitudinally. However, Adifon et al disclose their pulley-engaging surface and corresponding pulley as having flat profiles.

Habegger teaches his elastomeric body (10, Fig. 1) having a ribbed profile of approximately  $90^\circ$  as the pulley-engaging surface, in accompaniment with a pulley having a ribbed profile, as typical of power transmitting belts.

It would have been obvious to one of ordinary skill in the art to modify the invention of Adifon et al with the teaching of Habegger to provide a ribbed pulley-engaging surface, with a rib angle of approximately  $90^\circ$ , in keeping with conventional power transmitting belts.

### ***Response to Arguments***

Applicant's arguments with respect to **Claim 1** have been considered but are moot in view of the new ground(s) of rejection.

**Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Schröder-Brumloop et al (US 6,138,799), Beckadolph et al (US 3,068,710), Yuan et al (US 2001/0044354), Winninger et al (6,033,331) and Ach (2004-0262087) are cited for references elastomeric bodies having pulley-engaging ribbed profiles with rib angles of approximate 90°.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stefan Kruer whose telephone number is 571.272.5913. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kathy Matecki can be reached on 571.272.6951. The fax phone number for the organization where this application or proceeding is assigned is 571.273.8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866.217.9197 (toll-free).

SHK  
28 September 2006

  
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